TOYKKA, M.A., dotgent; SAKHAROVA, Ye.A.

STATE OF THE STATE

Zinc content of soils in Sortavala District. Uch. zap. Petrozav. gos. un. 12 no.3:92-96 64. (MIRA 19:1)

1. Kafedra neorganicheskoy khimii Petrozavodskogo gosudarstvennogo universiteta imeni O.V. Kuusinena.

TOYKKA, M.A., dotsent; LAZAREVA, Ye.A.

Copper and manganese content of soils in Sortavala District. Uch. zap. Petrozav. gos. un. 12 no.3:97-99 164.

(MIRA 19:1)

1. Kafedra neorganicheskoy khimii Petrozavodskogo gosudarstvennogo universiteta imeni O.V. Kuusinena.

TOYKKA, F A., dotsent; POTAKHINA, L.N.

Boron and molybdenum in soils of Sortavala District. Uch. zap. Petrozav. gos. un. 12 no.3:100-101 '64. (MIRA 19:1)

1. Kafedra neorganicheskoy khimii Petrozavodskogo gosudarstvennogo universiteta imeni O.V. Kuusinena.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

TOYKKA, M.A., dotsent; POPOVA, A.P.; POTAKHINA, L.N.

Content of total and available manganese in soils of Kondopoga and Medvezh'yegorsk Districts. Uch. zap. Petrozav. gos. un. 12 no.3:102-110 '64. (MIRA 19:1)

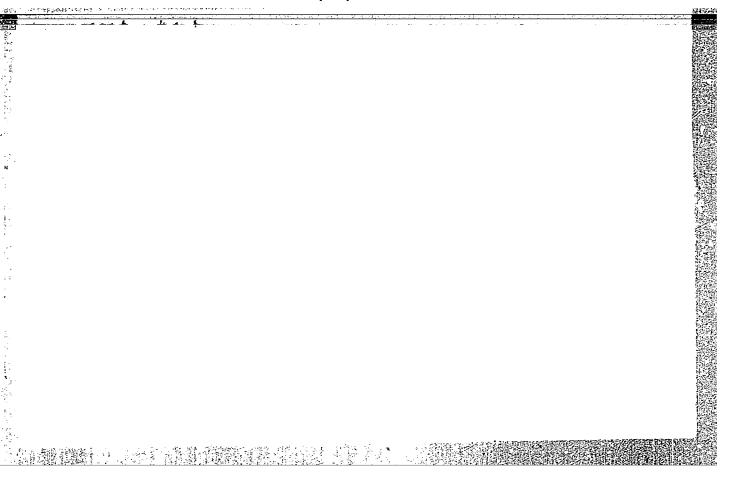
1. Kafedra neorganicheskoy khimii Petrozavodskogo gosudarstvennogo universiteta imeni 0.V. Kuusinena.

"APPROVED FOR RELEASE: 04/03/2001 CIA-

CIA-RDP86-00513R001756420012-3

•	COUNTRY : USSR CATEGORY : Soil Science. Soil Genesis and Geography.
	APS. JOUR. : EZhBiol., No. 3 1059, No. 10658
	AUTHOR TOTAL Petrozavodsk University Comparison of Shungite Soils with the Principal Comparison of Shungite Soils with the Principal Comparison of Shungite Soils with the Principal Soil Types of USAR ORTG. FUB. Unusual shungite soils(*Olonetz chernozems*) develor in Zeonezh'ye on black carbon shales. In color these soils Zeonezh'ye on black carbon shales. In color these soils ere similar to dhernomens of the upper humous horizon are sherply Ciffer from the latter in the solor of acti form- sherply Ciffer from the latter in the solor of humous ing rocks. In shungite soils, the genetic horizons are ing rocks. In regard to the reserves of humous not differentiates. In regard to the reserves of humous in the lat layer, these soils are intrazonal in comparison with the rest of the soil types. In the maximum amount of humos in the low layer of grable horizon (10-5), togs/ ha), these soils are close to thick characters; in the
) - CARD: 1/2

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/ 30 . JOUR.	: PZhBiol., No. 1959, No. 10658	
AUTMOR IMST. ITTLE	: :	
CRTG. FUR.	minimum emount of humus (5.31 tone/he) they are close forest-stuppe soils. Data are cited on the determinant the water properties of shungite soils. Unlike portable coils, shungite soils contain a large amount of mobile Poor in all soil horizons and a high content of total Poor. Bibliography of 27 titles F.I. Shora	:- !
0:m: 2/2	13	



TOYKKA, M.A., dotsent

Trace element content of plants in turf-Podzolic and schungite soils. Uch. zap. Petrozav. gos. un. 12 no.3:57-63 164.

Molybdenum content of soils and plants in the Shuya region and the requirements in molybdenum fertilizers. Ibid::82-87 (MIRA 19:1)

1. Kafedra neorganicheskoy khimii Petrozavodskogo gosudarstvennogo universiteta imeni O.V. Kuusinena.

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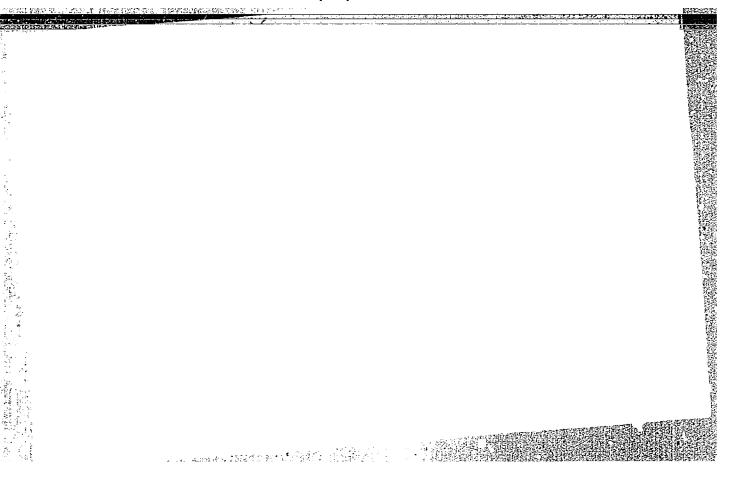
TOYBIN. Y.A. inshener, nauchnyy redaktor; BEGAK, B.A., redaktor izdatel stva; EL KINA, E.M., tekhnicheskiy redaktor

[Album of designs for wire suspension scaffolding used in building brick walls and finishing work on building frames with a height up to 50 meters] Al'bom chertezhei inventarnykh podvesnykh strunnykh lesov dlia kamennoi skladki stan i otdelochnykh rabot v karkasnykh zdaniakh vysotoi do 50 m. Moskva, Gos.izd-vo lit-ry po stroit. i arkhit., 1957. 43 p. (MLRA 10:7)

1. Akademiya stroitel'stva i arkhitektury SSSR. Nauchno-issledovatal'a skiy institut organizatsii i mekhanizatsii stroitel'stva.

(Scaffolding)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"



TOYDZE, I.

Children As Artists

"Creative work of youth." Sov. zhen., 8, No. 3, 1952.

9. Monthly List of Russian Accessions, Library of Congress, August 1952 1958, Uncl.

Category: USSR/Electronics - Gas Discharge and Gas-Discharge Instruments

Abs Jour: Ref Zhur - Fizika, No 1, 1957, No 1720

Author: Toyev, I.S.
Title: Procedure for Calculation of AC Electric Arc

Orig Pub: Tr. Mosk. energ. in-ta, 1956, vyp. 16, 16-31

Abstract: No abstract

Card : 1/1

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TOYGOMBAYEV, D.

Let's improve the training of rural machine operators. Prof.-tekh. obr. 20 no.4:7-8 Ap '63. (MIRA 16:5)

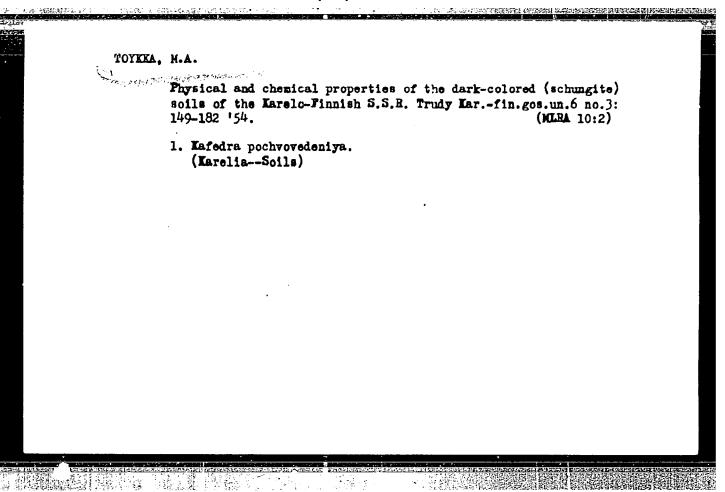
1. Nachal'nik Glavnogo upravleniya professional'no-tekhnicheskogo obrazovaniya pri Sovete Ministrov Kirgizskoy SSR.

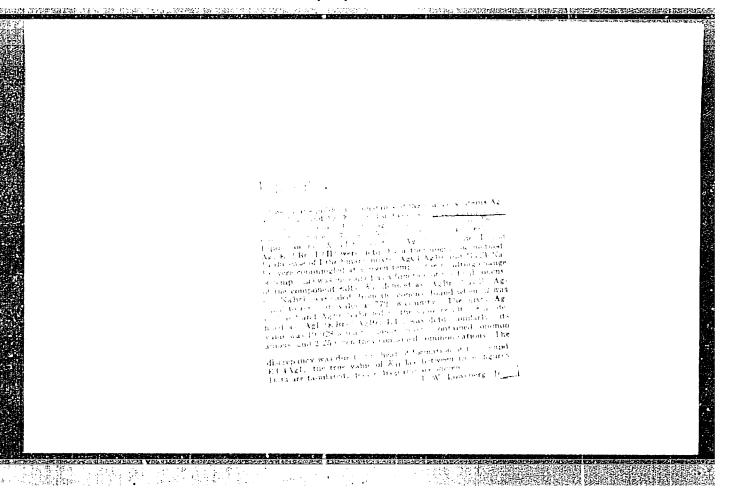
(Farm mechanization—Study and teaching)

Dark-colored (schungite) soils of the Karelo-Finnish S.S.R. Trudy
Kar.-fin.gos.un. 6 no.3:131-148 '54. (MLRA 10:2)

Kafedra khimii.
 (Karelia--Soils)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"





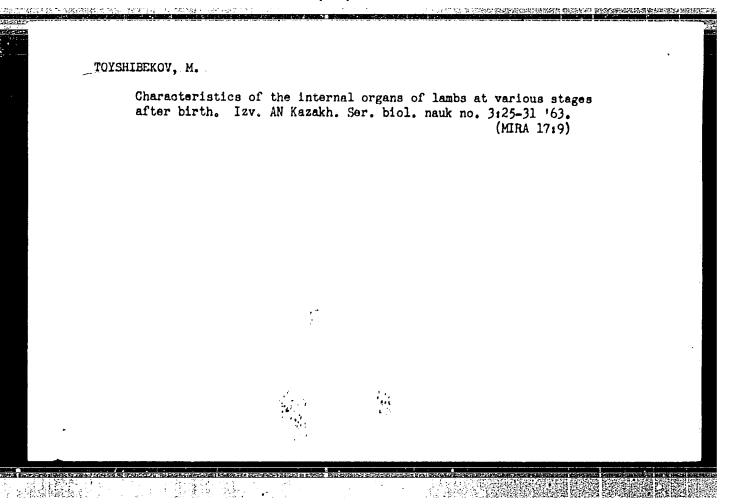
MARTYNOV, V.S., kand.sel'skokhozyaystvennykh nauk; TOYMETOV, N.I., zootekhnik

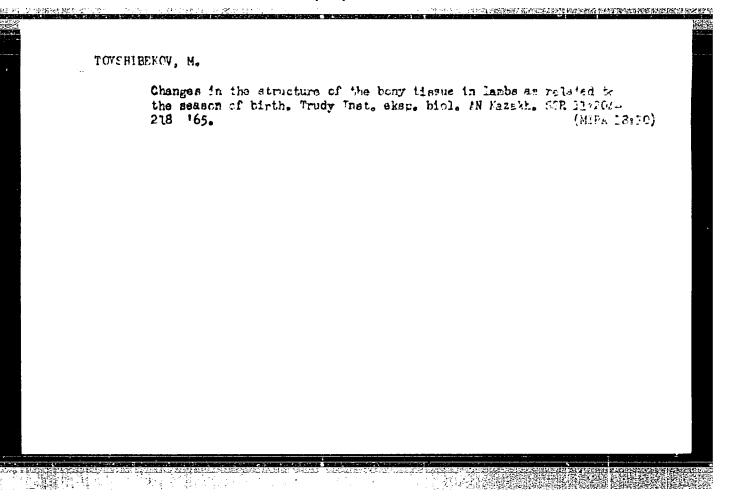
Some problems in breed work. Zhivotnovodstvo 21 no.2:12 F '59.

(MIRA 12:3)

1. Mariyskaya sol'skokhozyaystvennaya opytnaya stantsiya.

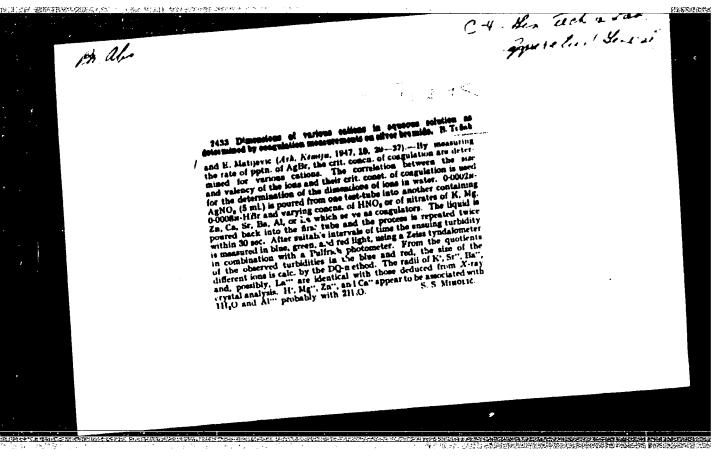
(Dairy cattle)





TOYVOO, Taebig, Doc Bio Sci-(dien) "Mge-releted createlony of the rature "and "how proper Mongol cettle." Len, 1958. 30 pp (Len Vet Inst of the lin of Agr USSR), 150 copies (KL,45-58, 144)

-43 -



KACZKOWSKI, J.; TOZEJKO-TOCZKO, M.

Bacteria decomposing tropane alkaloids. Acta microb.polon 9 no.2: 173-179 '60.

1. Z Katedry Biochemii Szkoly Glownej Gospodarstwa Wiejskiego i z Zakladu Biochemii Roslin Instytutu Biochemii i Biofizyki PAN w Warszawie (PSEUDOMONAS metab.)

(PSEUDOMONAS metab.)
(ALKALOIDS metab.)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

TOZHETSKI, Z.

Tuberculosis of the tonsils. Suvrem.med., Sofia no. 9/10:15-25 '59.

Iz Katedrata po patologichna anatomiia pri Med. akademiia v
 Lodz - Polsha. Zav.katedrata: prof. A. Prushchinski.
 (TUBERCULOSIS)
 (TONSIIS dis.)

TOZI, N.

,其是自己有其實質等一學自己自己的。

The ancient method of fishing on Lake Dojran. In English. p.ll..
THROUGH YUGOSLAVIA. (Turisticki savez Jugoslavije) Peograd. Vol. l., no. 2, 1955.

SOURCE: East European Accessions List, (EEAL), Library of Congress Vol. 5, No. 6, June 1956

TOZI, N.

The eels of Lake Ohrid. In English. p. 50; THROUGH YUGOSLAVIA. (Turisticki savez Jugoslavije) Beograd; Vol. 5, no. 1/2, 1956.

SOURCE: East European Accessions List (EEAL), Library of Congress, Vol. 5, No. 12, December 1956.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

TOZHINA, A.G.; ZEZYULYA, N.V.

Manufacturing guide rolls. Obm.tekh.opyt.[MLP] no.20:
22-23 '56.

(Sewing machines)

TOZANO12HOLAY AT

CZECHOSLOVAKIA/Pharmacology, Toxicology. Chemotherapeutical Pre- V-7

parations

Abs Jour : Ref Zhur - Biol., No 5, 1958, No 23460

Author : Toznetinsky M.
Inst : Not Given

Title : The Results of Izoniazid Application During 22 Years of Therapy

of Skin Tuberculosis in Out-Patient Departments

Orig Pub: Ceskoslov. dermatol. 1957, 32, No 3, 137-145

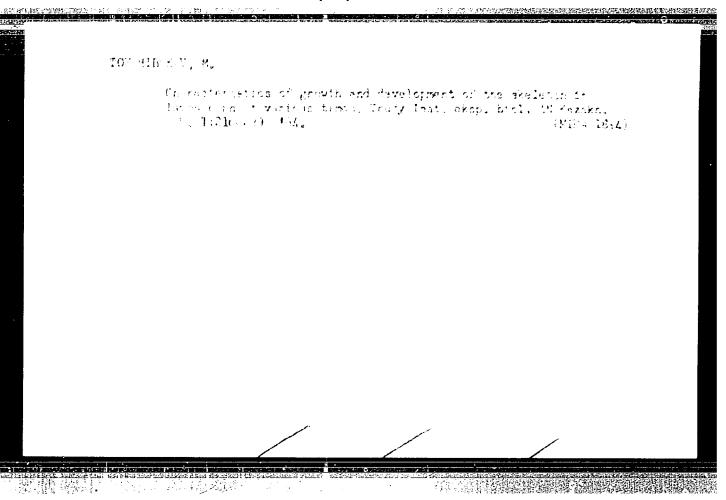
Abstract: Isoniazid was used in the treatment of 298 patients, afflict-

ed with avrious forms of skin tuberculosis. The average daily dose was 5 mg/kg; during the treatment as a whole, 48.73 g of isoniazid was used. Clinical recovery was obtained in 199 patients in about 5.28 months. In 8 patients the treatment was ineffective. Sixty two patients did not complete the treatment for various reasons. The author considered isoniazid the most effective and the fastest acting

agent in the treatment of skin tuberculosis.

Card : 1/1

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"



SOY/112-58-2-2179

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 62 (USSR)

AUTHOR: Sinel'nikov, Ye. M., and Tozoni, O. V.

TITLE: An Experimental and Analytical Method for the Design of a Magnetic Field in the Air Gap of DC Electric Machinery (Eksperimental no-analiticheskiy metod rascheta magnitnogo polya v vozdushnom promezhutke elektricheskikh mashin postoyannogo toka)

PERIODICAL: Tr. Novocherk. politekhn. in-ta, 1956, Vol 43/57, pp 7-28

ABSTRACT: A method is set forth for the experimental and analytical design of an air-gap magnetic field in DC machinery. The method is illustrated by an example of the design of the main-pole field of a DC machine.

Card 1/1

TOZONI, O. V. Cand Tech Sci -- (diss) "Calculation of the magnetic field of direct-current machines." Novocherkassk, 1957. 25 pp with charts (Min of Higher Education USSR. Novocherkassk Polytechnic Inst im Sergo Ordzhonikidze, Chair of "Theoretical and General Electrical Engineering"), 180 copies (KL, 3-58, 98)

-35-

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

8(0), 16(0)

SOV/112-59-2-2328

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 2, p 6 (USSR)

AUTHOR: Tozoni, O. V.

TITLE: Electrical Simulation of Functions That Conformally Transform Simply-Connected and Doubly-Connected Regions on an Infinite Strip (Elektricheskoye modelirovaniye funktsiy, konformno otobrazhayushchikh odnosvyaznyye i dvukhsvyaznyye oblasti na beskonechnuyu polosu)

PERIODICAL: V sb.: Mezhvuz. konferentsiya po primeneniyu modelirovaniya v elektrotekhn. zadachakh i matem. modelirovaniya, M., 1957, p 131

ABSTRACT: A method is suggested for defining the physical quantity (the current-field complex potential) on a conducting model that has the form of a specified simply-connected region. The physical quantity is simultaneously a function that transforms the region conformally on an infinite strip. If the region is polygonal, the above method serves to determine the constants in the Christoffel-Schwartz formula.

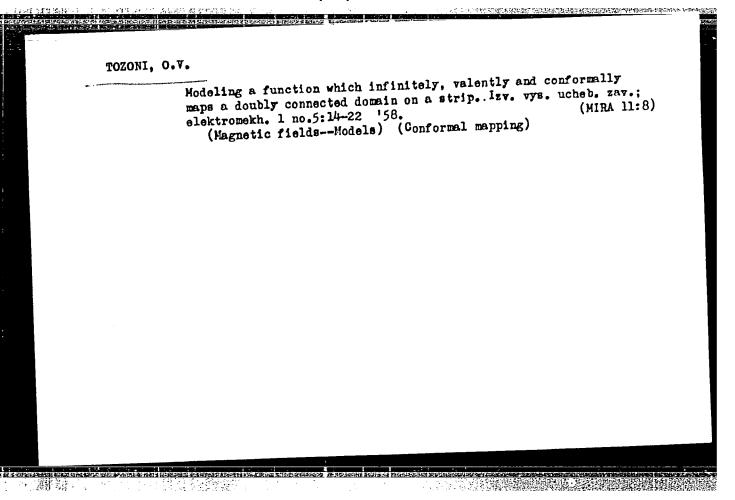
Card 1/1

TOZONI, Oleg Valentinovich.

Hagnetic field of direct current machines. Izv. vys. ucheb. zav.; elektromekh. 1 no.3:12-29 '58. (MIRA 11:6)

1. Starshiy prepodavatel kafedry teoreticheskoy i obshchey elektrotekhniki Novocherkasskogo politekhnicheskogo instituta. (Electric machinery—Magnetic properties)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"



E041/E235

16.6800

O. V., Candidate of Technical Sciences, Docent AUTHOR:

The Resolving Power of an Analogue Integrator for TITLE:

Solving the Dirichlet-Neuman Problem in a Strip

Izvestiya vysshikh uchebnykh zavedeniy PERIODICAL:

Elektromekhanika, 1960, Nr 5, pp 16-39 (ŬŚSR)

ABSTRACT: It is recalled that the present method, described in an earlier paper (Ref 1) is not unique in providing a

solution but is particularly useful because the normal derivative at the boundary is also found. The present

article examines the accuracy of the method. The basic

arrangement, shown in Fig 1, consists of a thin manganin strip of aspect ratio 10 with substantial brass contacts soldered to the narrow ends. Along one long edge there are specially-shaped teeth into which current may be fed from a bank of rheostats. The strip itself is very uniform, the variation in surface conductivity being less than 0.5%. Three main sources of error

investigated are: the finiteness of the strip; the discrepancy between the actual current distribution

from the teeth and that required; the effect of voltage

drop in the strip on current distribution. Card 1/3

805/144/60/000/05/003/014 E041/E235

The Resolving Power of an Analogue Integrator for Solving the Dirichlet-Neuman Problem in a Strip

shows how the sampling of the complete function over a finite length results in a discontinuity in the gradient of the function. The absolute error in the value of the normal derivative is given by Eq (3). If the working section of the strip is assumed to exclude at each end a length equal to twice the strip width then the error is very small (Eq (4)). Because the number of teeth used to introduce the transverse current is finite it is impossible to guarantee the correct current distribution close to the base of the teeth. The normal derivative in this region is measured by the drop in voltage between contacts of a double-probe, The influence of various laws of variation of current with distance along the strip upon the error in determining the derivative is found for four cases: constant, linear, parabolic and cubic. In the first two cases an effective width can be specified within which there is negligible error. In the latter two cases there are similar but less explicit criteria. The accuracy with which the

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The Resolving Power of an Analogue Integrator for Solving the Dirichlet-Neuman Problem in a Strip

normal derivative may be measured can be increased by subtracting a constant component from the current distribution, as shown in Fig 6. It is also shown to be possible, using the principle of superposition, to use the integrator with problems involving a first-order discontinuity at the boundary. The current flowing through the teeth into the strip must be allowed for in estimating voltage drops on the strip. Using such a correction the residual error is less than 0.4% and negligible. There are 7 figures, 4 appendices on each of the current-variation laws and 4 Soviet references.

ASSOCIATION: Kafedra teoreticheskoy i obshchey elektrotekhnikiy
Novocherkasskiy politekhnicheskiy institut (The Chair
of Theoretical and General Electrical Engineering,
Novocherkassk Polytechnical Institute)

SUBMITTED: January 17, 1960

Card 3/3

L 11638-66 EWI(1) GG

ACC NR: AR5018673

UR/0196/65/000/007/A008/A008

538.311

SOURCE: Ref. zh. Elektrotekhnika i energetika, Ats. 7A57

AUTHOR: Tozoni, O.V.; Petrushenko, Ye.I.

TITLE: Calculating the field of electromagnetic devices with the help of a digital

computing machine

CITED SOURCE: Sb. Kommunal'n. kh-vo. Vyp. 2. Kiyev, Budivel'nyk, 1964, 5-13

TOPIC TAGS: magnetic field, computer, electromagnetic field, magnetic permeability,

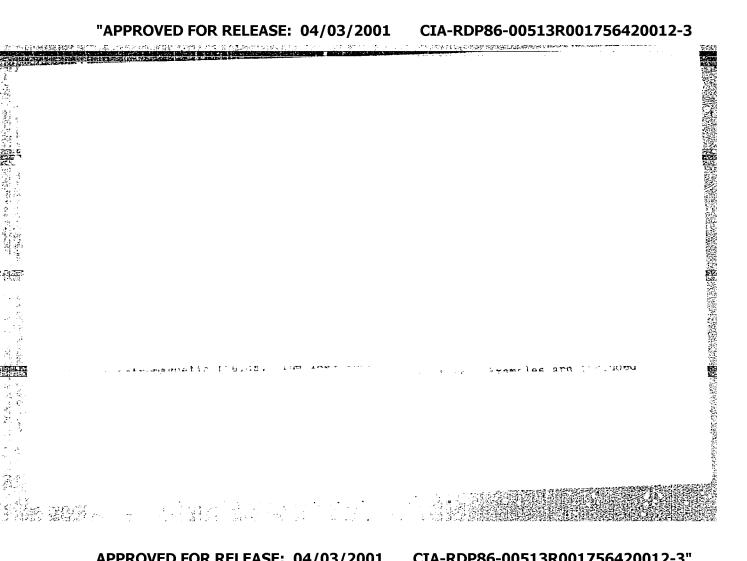
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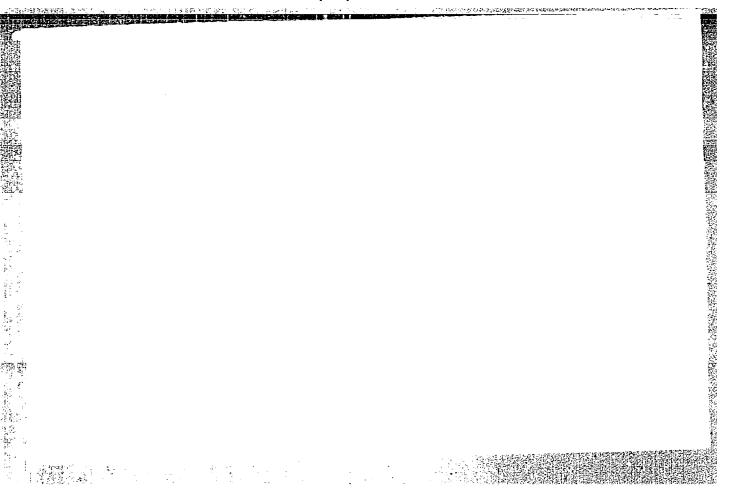
TRANSIATION: A study was made of the algorism of a field calculation in electric and technical devices, convenient to realize on a digital computing machine and depending on two spacial coordinates only, i.e., plane. The magnetic permeability is considered to be permanent. The calculation of the field in a linear and magnetically heterogeneous media is reduced to the calculation of a field in a vacuum by using the G.A. Grinberg method. 4 illustrations and 4 references.

I. Tikhomirov

SUB CODE: 14,09

Card 1/Ti





TOZONI, Gleg Valentinovich, kand. tekhn. nauk, dotsent, starshiy nauchnyy

Calculation of static fields in conlinear media. Izv. vys. ucheb. zav.; elektromekh. 7 no.8:915-926 164. (MHA 17:10)

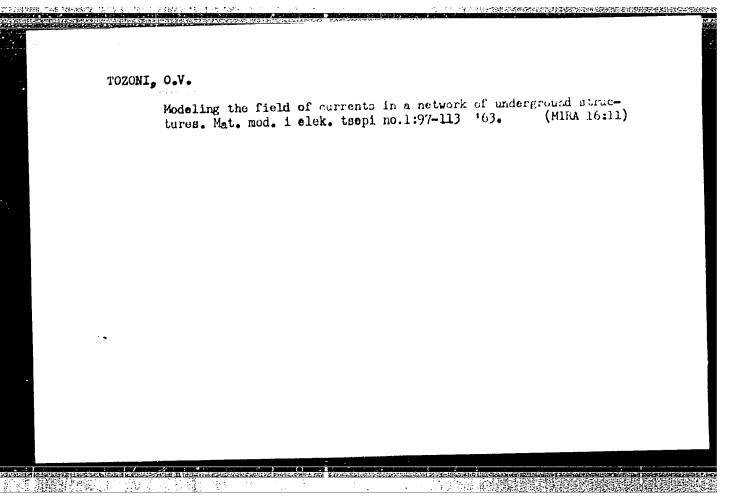
1. Institut kibernetiki AN UkrSSR.

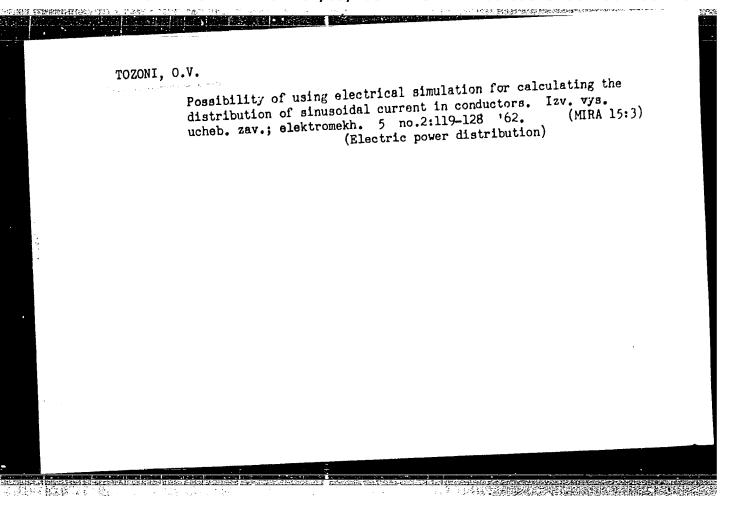
TOZONI, Oleg Valentinovich; PUKHOV, G.Yo., otv. red.; MEL'KIK,

[Mathematical models for the calculation of electrical and magnetic fields] Matematicheckie modeli dlia rascheta elektricheskikh i magnitnykh polei. Kiev, Haukova dumka, 1964. 301 p. (MIRA 17:8)

1. Chlen-korrespondent All Ukr. SSR (for Fukhov).

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"





TOZONI, Oleg Welentinovich, kand.tekhn.natk, dotsent, starshiy nauchnyy sotrudnik

Electric integrator for simulating a special solution of Poisson's equation. Izv. vys. ucheb. zav.; elektromekh. 4 no.3:3-16 [MIRA:14:7]

1. Vychislitel'nyy tsentr Akademii nauk USSR.
(Electromechanical analogies)
(Differential equations)
(Electric machinery)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

3723k

5/144/62/000/002/001/007 D289/D301

9.1400

AUTHOR:

Tozoni, Oleg Valentinovich, Candidate of Technical

Sciences, Docent

TITLE:

Possibilities of computing the distribution of sinusoidal current in conductors using electrical model

techniques

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Elektro-

mekhanika, no. 2, 1962, 119 - 128

TEXT: The Fredholm equation of the second kind can be used to show the distribution of sinusoidal current in conductors:

 $\dot{\mathbf{E}}_{\mathbf{Q}}(\mathbf{Q}) = \dot{\mathbf{E}}(\mathbf{Q}) - i\lambda \int_{\mathbf{D}} \dot{\mathbf{E}}(\mathbf{M}) \log \mathbf{r}_{\mathbf{QM}} d\mathbf{M}$ (1)

where

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 $\dot{\mathbf{E}}_{0} = \frac{\dot{\mathbf{u}}}{1}$; $\dot{\mathbf{E}}(\mathbf{Q}) = \frac{\dot{\delta}(\mathbf{Q})}{\gamma}$; $\lambda = \mu \gamma \mathbf{f}$; $\mathbf{i} = \sqrt{-1}$;

 \tilde{u} - vector potential acting on the length 1 of the conductor; \tilde{E} - internal electric field vector in the conductor; δ - vector current Card 1/3

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Possibilities of computing the ...

density; μ - permeability and γ = specific resistivity of the conductor; f - frequency; r_{QM} - distance between points Q and M in section D; dM - element of area in section D. Substituting $E = E_a + i F_p$ and eliminating imaginary parts,

 $E_{a}(Q) - E_{o}(Q) = -\lambda^{2} \int_{D} E_{a}(N) K(Q, N) dN$ (4)

where

 $K(Q, N) = \int_{D} \log r_{MN} \log r_{QM} dM.$

The solution of Eq. (4) is difficult since it involves repeated surface integration and can be obtained with a model representing a boundless conducting plane. The model called an electro-integrator, consists of two sheet metal discs separated by insulation and spotwelded together at the periphery to which point sources of current are attached. Eq. (4) rewritten as

 $E_o(Q) = E_a(Q) + \lambda^2 KE_a = AE_a$

Card 2/3

Possibilities of computing the ...

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where

$$KE_a = \int_D E_a(N)K(Q, N)dN$$

can be 'set' on the model. The application of the operator K is equivalent to setting of current on the model $\sim 2\pi\gamma E_a$, measurement of U, setting of current $\sim 2\pi\gamma U$. Successive operations are equivalent to K^n and the solution of Eq. (4) must form convergent Neumann series of K^nEa. When the conductor section greatly exceeds the penetration of electromagnetic wave, the Neumann series may not converge and this is illustrated by a numerical example for a copper conductor and an aluminum conductor. Using functional analysis and Tchebychev polynomials the author evolves an alternative equation for use in such case. There is 1 figure.

ASSOCIATION: Vychislitel'nyy tsentr AN USSR (Computer Center AS

UkrSSR)

SUBMITTED:

April 28, 1961

Card 3/3

9.7200

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28198 S/194/61/000/005/015/078

D201/D303

AUTHOR:

Tozoni, O.V.

TITLE:

Analogue computer for evaluating stresses during the

machining of shafts with complex cross sections

PERIODICAL:

Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1961, 15, abstract 5 B95 (Tr. 1-y Mezhvuz. nauchno-tekhn. Konferentsii po elektr. modelirovaniyu zadach. stroit. mekhan., soprotivleniya materialov i teorii uprugosti. B.M. Novocherk, politekhn.

in-t, 1960, 80-85)

TEXT: A description is given of an electrical analogue whose basic element consists of a manganese strip 150 x 1500 mm cut from a sheet 0.35 mm thick. One of the sides of the rectangular strip is used to provide the boundary values of the function by means of current determined by 100 variable resistors. The circuit uses the analogue of the conformal transformation of the analyzed region

Card 1/2

28198 S/194/61/000/005/015/078 D201/D303

Analogue computer ...

into an infinite strip. The unknown harmonic function is simulated by the current function and its bounds by the potentials which permits solving the Dirichlet and Neumann problem in single—and double-bounded domains. This is because not only the required harmonic function is being determined, but also its normal derivative at the boundary of the domain. 3 figures. 3 references. Abstracter's note: Complete translation?

X

Card 2/2

24,2300 (1127,1158,1103)

5/144/61/000/003/001/004

E194/E435

AUTHOR:

Tozoni, O.V., Candidate of Technical Sciences, Docent

TITLE:

An Electrical Integrator for Modelling a Partial Solution

of Poisson's Equation

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy,

Elektromekhanika, 1961, No.3, pp.3-16

Calculations on static fields often involve solution of TEXT:

(1)

the equation

 $\Delta \varphi = f(x, y)$

Usually, the density of field sources f(x,y) differs from zero only in a limited region which usually corresponds to the boundary of separation between two different media which govern the boundary In some cases the right hand side of Eq.(1) is known conditions. and the problem simply consists in solving the boundary problem for In other equations $\varphi(x,y)$ corresponds to a Poisson's equations. more complicated differential equation but in this case too a result can sometimes be reached by solving a series of boundary problems for Poisson's equation. Functions which are a solution of boundary problems for Poisson's equation can, of course, be Card 1/10

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S/144/61/000/003/001/004 E194/E435

An Electrical Integrator for ...

represented in the form of sums of the harmonic function $\phi_1(x,y)$, which is defined within the given region by the boundary conditions and of the function $\phi_2(x,y)$ which is defined over the whole plane only by the distribution of the sources f(x,y). Functions $\varphi_2(x,y)$ are termed a partial solution of Poisson's In the general case, analytical solution of the boundary problem of Poisson's equation is complicated, laborious It is accordingly of interest to develop a and inaccurate. device for modelling a solution of these problems. impossible to develop a universal model and it is difficult and expensive to develop a separate model for each particular problem. It accordingly seemed rational to solve the boundary problem in an integrated way combining analytical calculation with modelling of the more complicated and laborious mathematical operations. Accordingly, the article describes a device that models the partial solution of Poisson's equation and considers its accuracy. potential function $\phi_2(x,y)$ which satisfies Poisson's equation on a plane is defined by the following expression

Card 2/10

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a Electrical Integrator for ...

$$\varphi_z(x, y) = Im \left[\frac{-i}{2\pi} \iint f(x_o, y_o) \ln(z - z_o) ds \right], \tag{2}$$

where $z_0 = x_0 + iy_0$ is the complex coordinate of the element ds in the region S which is filled with sources of density f(x,y) on the area of which z = x + iy is integrated. An analogous expression defines the d.c. potential field in an infinite conducting sheet of constant conductivity per unit of surface γ , if a current of density $\delta = \gamma f(x,y)$ is applied to each point of the sheet S. Consequently, the required function $\varphi_2(x,y)$ may be modelled by the potential field of a current in a conducting sheet. In order that the potential field of current in the sheet should give a partial solution for Poisson's equation, it is necessary firstly that the sheet should be uniform and infinite and secondly that the distribution of current density in the sheet should correspond to the function f(x,y) in the right hand side of Poisson's equation. Such a Card 3/10

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S/144/61/000/003/001/004 E194/E435

An Electrical Integrator for ...

model cannot be prepared because the sheet must be limited and the source distribution must be discrete. Moreover, the sheet is not The errors introduced uniform where the sources are connected. The limited by these imperfections are then assessed. If the region dimensions of the model are first considered. containing sources is near the centre of the sheet and contains mainly sources of a single sign, a circular model may be used with a contact ring of high conductivity. It is accordingly considered that the model is made up of a uniform circular conducting sheet the centre of which, with a radius r, contains of radius R current sources connected to the sheet at particular places. A busbar of high conductivity is connected round the edge of the The greatest field distortion in the outer conductor will occur when the current sources are equal but of opposite sign and are concentrated at two diametrically opposite points on the circle. In most cases, it is required to determine not the actual function $\phi(x,y)$ but its differential or gradient. It is much more difficult to model the gradient accurately than the function and accordingly the error is assessed in terms of gradient error. Card 4/10

S/144/61/000/003/001/004 An Electrical Integrator for ... E194/E435

case is considered of two sources, one positive +t and the other negative - t located as shown in Fig.1. The mirror image method is used to find the complex potential $W_1(z)$ of the resultant field. It is then shown how the error in the gradient depends on the ratio r/R = K. If, for convenience, the part of the model containing sources is made with radius r = 15 cm and the maximum permissible error $\delta = 3\%$, it is found that R = 346 cm. This is unacceptably large, particularly as the greater part of the model serves only to reduce the error. The model dimensions may be reduced to those of its working part if the outer ring is replaced by its conformal representation. Then the representation of the circle $\rho = 4r$ (Fig.2) becomes a circle of $\rho = R = 23r$ also becomes a the same radius whilst the circle circle but of radius 0.7 r. Thus the original inner circle is now represented by an outer ring and the original outer by an inner one. Now suppose that the image of both original ring and circle are made of conducting sheet. The ring is placed under the circle and they are electrically connected round the periphery $\rho = 4$ r. At the inner circle the ring is connected to a busbar of infinite conductivity. The resultant model consisting of a 2-sheet surface Card 5/10

S/144/61/000/003/001/004 E194/E435

An Electrical Integrator for ...

with sources given inside the circle ho 54r may be considered as the region of existence of a complex potential W(z) of the current field which, in the circle $\rho \leqslant 4r$ is equal to the complex potential $W_1(z)$ of the current field in the initial large circle $\rho = R$ with the same source distribution in it. A mathematical demonstration of this point is then given. shown that the model may be made in which the error due to the dimensions of the sheet may be as small as necessary. suffices to make the radius of the inner ring and so the radius of the contact busbar sufficiently small. If the radius of the inner ring is made 2.5 cm this corresponds to an outer radius of R = 1440 cm. The circle and ring are made of thin uniform metal sheet (manganin 0.25 to 0.3 mm thick), they are then placed on one another and welded together round the periphery by contact spot The welding points must be uniform and sufficient in welding. number. Thin insulation is placed between the sheets. sources are connected to the circle through holes in the ring by contact screws of small diameter. The current sources are made in the form of long rheostats of small diameter arranged in two rows round the circumference of the model, The supply unit is Card 6/10

20901 \$/144/61/000/003/001/004 E194/E435

An Electrical Integrator for ...

located under the model and consists of a stabiliser, a 220/5 V transformer and a selenium rectifier. The total current in the sheet is 200 A. The influence of source distribution is In the model 400 contact screws were used. then considered. In solving a particular problem the region filled with sources is applied to the circle with contact screws and current is supplied to those screws which fall within the region, the remainder being The field in the model is distorted, firstly disconnected. because the current is applied at particular places and secondly because the sheet is made non-uniform by the presence of the contact screws. The field in the model is distorted both because the current is applied at particular points and because the distribution is not exactly that required near to the measurement It is then shown how to select the model dimensions so points. as to reduce these errors to a minimum and with appropriately chosen dimensions it is shown that the error due to the discrete distribution of the sources is negligibly small. Effects due to non-uniformity of the sheet are then considered. In particular, the error is due to the inclusion of contact screws in the upper ring The conductivity per unit surface of the contact of the model. Card 7/10

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An Electrical Integrator for ...

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screw is considered to be very much greater than the conductivity of the sheet and it is shown that with appropriate design the On the basis of the analysis that is maximum error will be 1.5%. given, it is concluded that in solving particular problems the resultant error of modelling the differential of the required function does not exceed 3% of the actual value at the point of The error of modelling the function is less than measurement. By means of the electrical that of modelling the gradient. integrator, it is possible to determine not only the design function but also its conjugate in the region where it exists. For example, in calculating the magnetic field in the air gap of an electrical machine it is necessary to know the distribution of scalar magnetic potential around the contour of the steel parts with a given distribution of current density in the winding sections. The electrical potential of the current field in the model can serve as an analogue only of the vector magnetic potential which, outside the section of the winding, is a harmonic function Using a double conjugate with the scalar magnetic potential. probe such that on each section of the contour of length d the probe needles lie on the normal to the centre of the section, from Card 8/10

20901 5/144/61/000/003/001/004 E194/E435

each side at a distance of d/2 from the contour, it is possible to measure the increment in scalar magnetic potential on each section and so define the distribution of potential over the contour. In conclusion, it is noted that using a method of successive approximations the electrical integrator may be used to model functions which correspond to more complicated differential equations such as the equation $\Delta_{\phi}=\sqrt[3]{2}_{\phi}$. There are 5 figures and 9 Soviet references.

ASSOCIATION: Vychislitel nyy tsentr AN UkrSSR

(Computer Centre, AS UkrSSR)

SUBMITTED: January 24, 1961

an Electrical Integrator for ...

Card 9/10

SOV/144-5%-12-5/21

STATE OF THE PROPERTY OF THE P

Tozoni, O.V., Candidate of Technical Sciences. Dotsent. AUTHORS:

Khlebnikov, S.D. Assistant, Sinel nikov, Ye.M., Dector of Technical Sciences, Professor; Kolesnikov, E.V.,

Assistant

An Electrointegrator for Solving Dirichlet and Neuman's TITLE:

Problems in a Strip

PERIODICAL: Izvestiya vysskikh uchebnykh zavedeniy, Elektromekhanika,

1959, Nr 12, pp 18-25 (USSR)

Dirichlet-Neuman boundary value problems arise in the ABSTRACT: calculation of fields in linear media. Analytical and

numerical methods of solution appear to be unsatisfactory in practice and simulation is therefore considered. The conventional approach has a number of disadvantages. For example, in Fig 1 a harmonic function is modelled by the potential V of the current field in a conducting sheet. The potential and its gradient are measured with

the probes and potentiometer. The sheet is usually

metallic, with an insufficiently high surface resistivity. A better method is that of fig 2 in which the barmonic

function is represented by current. The current itself

is measured by a special magnetic loop-probe connected to Card 1/4

CIA-RDP86-00513R001756420012-3" APPROVED FOR RELEASE: 04/03/2001

An Electrointegrator for Solving Dirichlet and Neuman's Problems in a Strip

a ballistic galvanometer. The current gradient is measured on a galvanometer connected to a twin-probe. using the relationship between the space-derivative of current and the time-derivative of voltage. The new method has the following disadvantages: for each new problem a special model must be made by skilled effort. high accuracy demands careful setting of the boundary values and this requires precision rheostats. An estimate of the accuracy in any region is difficult However, the use of conformal transformation enables these drawbacks to be avoided and a general-jurpose simulator has been evolved. In 1956 a method of conformally representing a singly or doubly-connected region within an infinite strip was developed at the Novocherkasskiy Polytechnic Institute (Ref 1,2,3). The Dirichlet problem then becomes Poisson's integral (Ref 1 2). The problem is still a difficult one but the authors' development, the Electrointegrator allows a sufficiently accurate numerical solution. electrointegrator is intended chiefly for finding at the

Card 2/4

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

SOV/144-59-12-3/21

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An Electrointegrator for Solving Dirichlet and Neuman's Froblems in a Strip

strip boundary, the normal derivative of the harmonic function defined by the boundary values. The modelling principle is that described above. The block diagram of the electrointegrator is in Fig 3. The conducting sheet is a rectangle of manganin, 0.35 mm thick, measuring 135 x 1500 mm. Along one side of the strip current is fed in at 100 points from rheostats which can vary the current between 0.25 and 2.5 A. The ends of the strip are bonded to brass edges and fed from rheostats supplying up to 20 A. The currents are monitored on a multirange plug-in ammeter. The integrator currents are derived from a six-phase bank of selenium rectifiers type CB-100. The transformer primary is supplied from a group of CN-250 voltage stabilizers. The line voltage may be 220 or 380 V_{\odot} the output level can be 8, 10 or 12 V (on open circuit) The exploring probe has two needles spaced by the same amount as the feeding points at the strip edge. Experiment shows that measurement made at least two strip-widths from the ends of the strip differ negligibly from the infinite-strip values. The L

Card 3/4

An Electrointegrator for Solving Dirichlet and Neuman's Problems in a Strip

arrangement is intended for calculations of the fields in unsaturated machines. In the appendix the problem is solved of finding the radial component of induction in the armature of a HN 300 machine (Fig 4). Fig 5 shows the distributions of scalar magnetic potential along the rectangle for both rotor φ_2 and stator φ_1 . Fig 6 is the distribution of induction along the edge of the armature under a main pole, compared with experimental findings (shown dotted). There are 6 figures, 2 tables and 4 Soviet references

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novocherkassk Folytechnic Institute)

SUBMITTED: July 26, 1959

Card 4/4

TOZONI, Oleg Valentinovich, kand.tekhn.nauk, dotsent

Capability of the electric integrator to solve Dirichlet
Neumann problems on a tape. Izv.vys.ucheb.zav.; elektromekh.
3 no.5:16-39 '60. (MIRA 13:7)

1. Kafedra teoreticheskoy i obshchey elektrotekhniki
Novocherkasskogo politekhnicheskogo instituta.
(Boundary valve problems)
(Electronic analog computers)
(Electromechanical analogies)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

TOTSER, A.

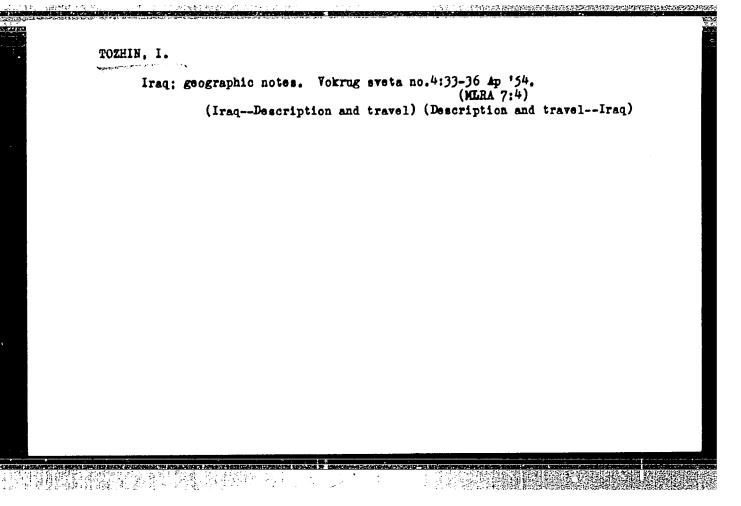
Cernik, B. Millisecond blacking method with a powerful blacking charge using fulgarite. p. 71.

RUDY, Praha, Vol. 3, no. 3, Mar. 1955.

So: Monthly List of East European Accessions, (ASAL), LC, Vol. 4, no. 10, Oct. 1955,

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

SHANDS THE STREET STREET, SAN THE STREET, SAN



HUNGARY

MARTON, Dezso, Dr. TOZSER, Erzsebet, Dr. Veszprem Megye Hospital, Ophthal-mological Ward (chief physician: MARTON, Dezso, Dr) (Veszprem Megyei Korhaz, Szemeszeti Osztaly).

"Ophthalmological Side Effects of Certain Drugs With Special Attention to the Hungarian Traffic Regulations on Public Highways (KRESZ)."

Budapest, Orvosi Hetilap, Vol 107, No 33, 14 Aug 66, pages 1559-1560.

Abstract: [Authors' Hungarian summary] The conditions required for driver's license, as stated in paragraph 46 (3) of KRESZ, are described. A comparison is made between ophthalmological symptoms which can be seen in some cases of alcohol intoxication and in response to certain drugs. In the interest of accident-free traffic, informative and orientational work as well as official regulations are recommended. 2 Hungarian, 8 Western references.

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影響機能;

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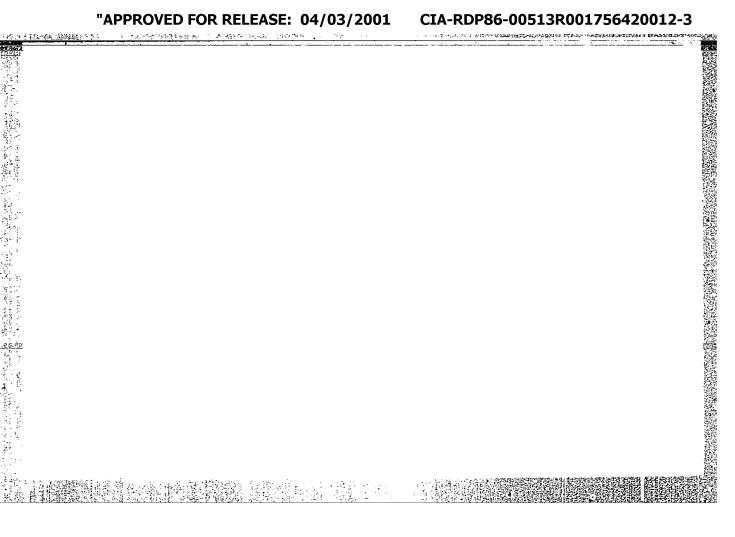
KOMAN, Andras; CZABAFY, Laszlo; Technikai segedletevel TOZSER, Olga

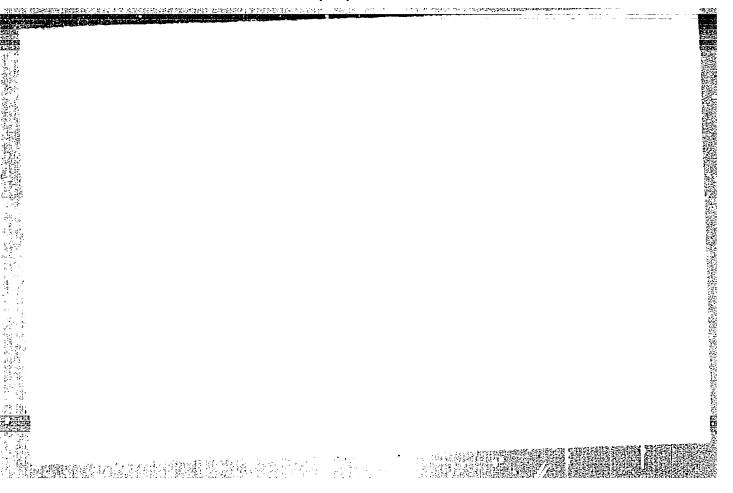
Experience with an automatic cell counter. Kiserl. orvostud. 13 no.6: 667-670 D *61.

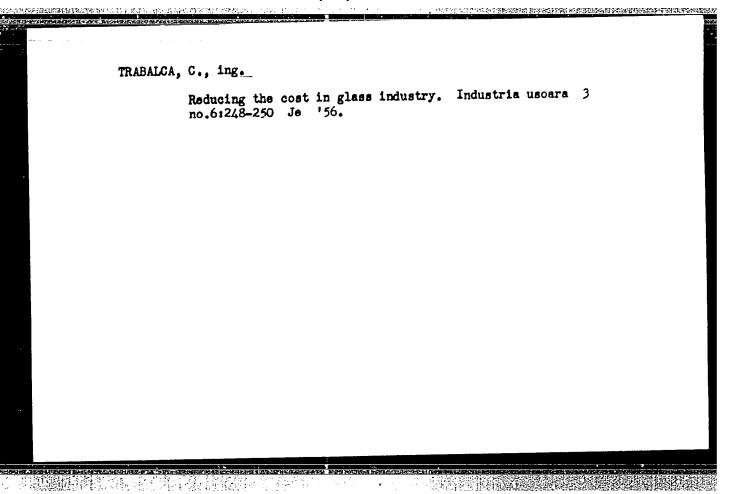
1. Matrahazai Allami Tudobateggyogyintezet Laboratoriuma.

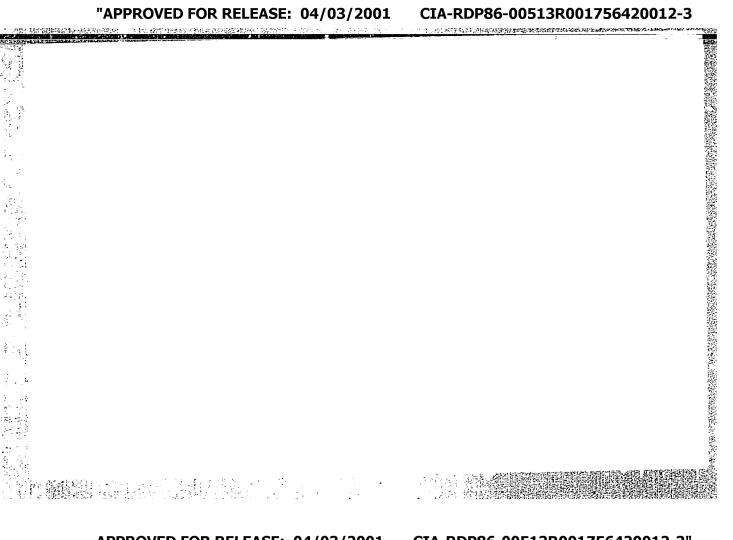
(HISTOLOGICAL TECHNIQUES)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"









"不是一个人,我们是这些的时候会把其他的时候就是<mark>你还不是我的时候我还是我的</mark>

B-8

Country

: Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical Analysis. Fhase Transitions. Catogory

Abs. Jour.: Ref Zhur - Khimiya, No 6, 1959

: Kurtyka, Z.; Trabczynski W. Author

Institut.

·严肃的人名 夏杰斯克

: Acetic and Propionic Acids as Azectropic Agents Title

in Relation to the Series of Normal Paraffin

Hydrocarbons.

: Roczn. chem., 1958, 32, No 3, 623-635 Orig Pub.

Abstract : The ebulliometric method was used to determine composition and boiling point of 2-component azeotropic mixtures consisting of acetic (I) or propionic acid (II) and a normal paraffin hydrocarbon containing n carbon atoms (Hn). Azeotropic range comprises in the case of I, Hn with n = 6-11, and in the case of II -- those with n = 7-10. Boiling point isobars of both azeotropic series under study are level over wide concentration range. Results of ebulliometric determinations were used to calculate the coefficient of activity of the components of azeotropic mixtures, by means of the formula: $X_i = p/p_i$, where p-normal pressure (760 mm Hg), p_i -vapor pressure of pure components at the card: 1/2

CIA-RDP86-00513R001756420012-3"

APPROVED FOR RELEASE: 04/03/2001

Country : Poland B-8Catogory= : Thermodynamics. Thermochemistry. Equilibria. Physico-Chemical Analysis. Phase Transitions. Abs. Jour.: Ref Zhur-Khimiya, No 6, 1959 18434 Author Institut. Title Orig. Pub. : : boiling point of corresponding azeotropic mixtures. pi was calculated according to Antoine formula using the constants of Dreisbach (Dreisbach R.R., Pressure-Vol-Temperature Ralationship of Organic Compounds. Ed. 3, Ohio, 1952). By graphic extrapolation were determined the boiling points of hypothetic H_n , which, as the firsts members of the series, would form tangential azeotropes with I and II, and also the azeotropic limits of these extreme homologues: 57° for I and 49° for II. -- B. Kaplan. Card: 2/2 B-10

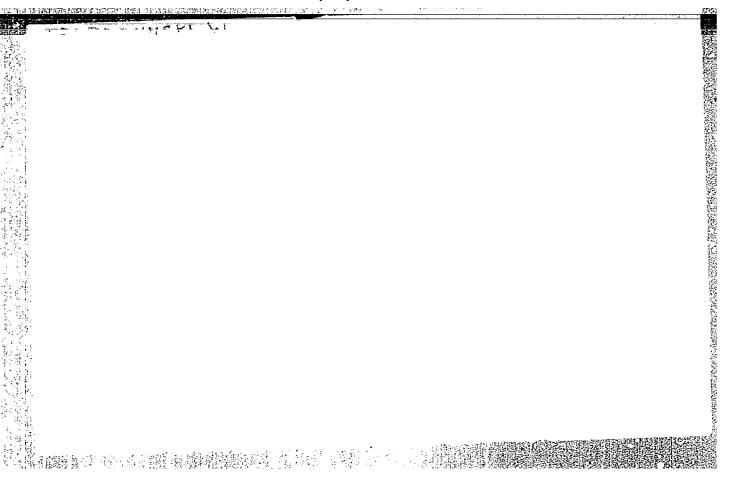
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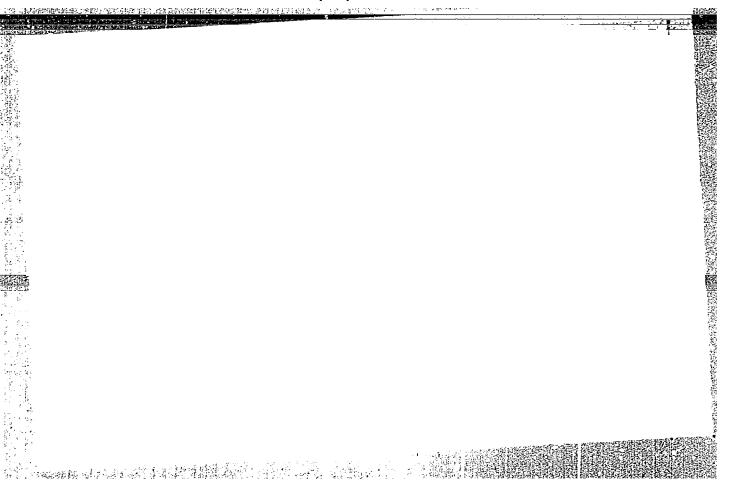
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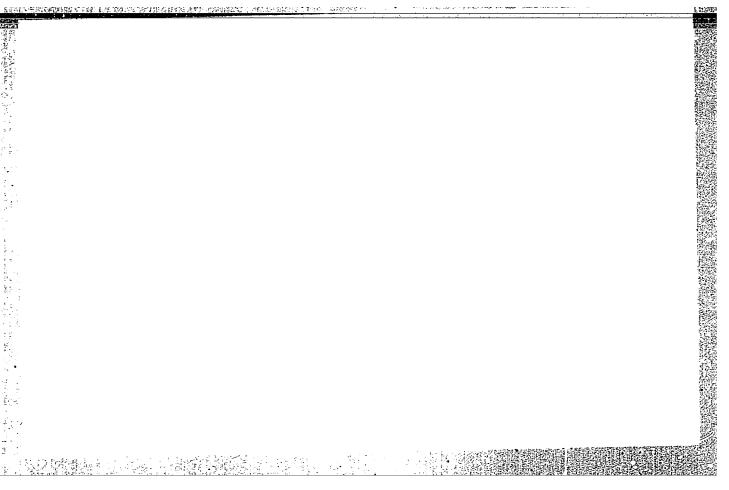
inestion or called points in the parish of systems former y propionic acts, 2-picolino and magazafeles. But orim this no.5:335-343 - 144.

1. Institute of Physical Chemistry, Louis Schalemy of Brionces, Warsaw, and Control Office of Weights and Sets see, Warsaw. From the day W. Suistoslauki.

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"







ROVED FOR RELEASE: 04/03/20	01 CIA-RDP86-00513R0	
 Distillation anomalies observed in materials forming ternary positive-negative ere. I. W. Swietostawski and W. Triff polon. 161., Classe 111-3. 333-7118. recently investigated (cf. Ewell and new group of ternary, post-negaze pyridine, and octane, showed distorthose found for a known saddle a CHCh, acetone, and McOH (cf. Ewell Swietosławski, C.A. 48, 1753b).	ottopes and radtropes Dezyrski: Bull. cond Dezyrski: Bull. cond Dezyrski: Bull. cond Welch, C.A. 40, 7941) Ottopes contg. AcOH, th. anomalies similar	3

TRABCZYNSKI, W.

Rectification of ternary mixtures of components forming saddle systems characterized by fading top-ridge line. Bul chim PAN 8 no.8:433-436 160. (EEAI 10:9/10)

1. Department of Physical Chemistry, University, Warsaw. Presented by W. Swietoslawski.

(Mixtures) (Systems(Chemistry))

TRABCZYNSKI, W.

25. 金铁铁铁铁铁头等

On some details of abnormal rectification phenomena associated with the shape of the top-ridge line of saddle systems. Bul chim PAN 8 no.9:497-502 160.

1. Department of Physical Chemistry, University, Warsaw. Presented by W. Swietoslawski.

(Systems(Chemistry))

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

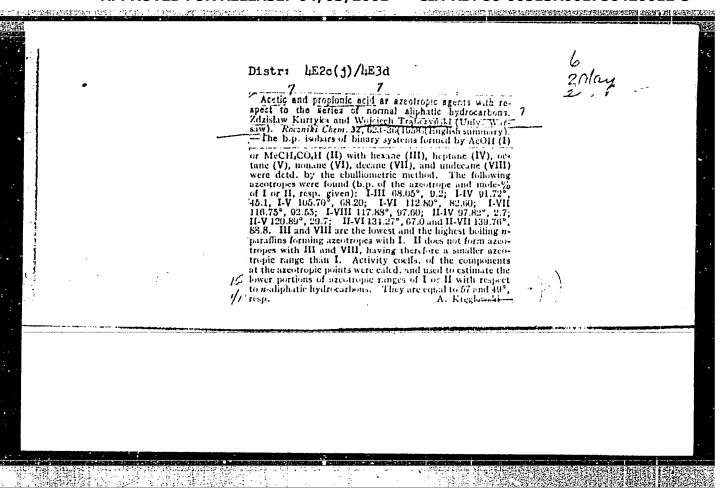
TRABCZYNSKI, W.

On rectification of ternary mixtures belonging to the saddle system composed of acetic acid, 2,6-lutidine and n- nonane. Bul chim PAN 8 no.9:503-509 160.

1. Department of Physical Chemistry, University, Warsaw. Presented by W. Swietoslawski.

(Mixtures) (Systems(Chemistry)) (Acetic acid) (Lutidine) (Noname)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"



TRABCZYNSKI, Zbigniew

Effect of occupational activities on hearing in telephone operators. Otolar polska 15 no.3:315-325 61.

1. Z Kliniki Otolaryngologicznej AM w Lublinie Kierownik: prof. dr med. B. Dylewski i ze Szpitala Miejskiego w Chemie Lubelskim Dyrektor: lek. med. B. Pozniak.

(HEARING TESTS) (OCCUPATIONS AND PROFESSIONS)

TRABCZYNSKI, Zbigniew.

Apparatus for ligation of bleeding vessels in tonsillar niches.
Otolar. polska 9 no.3:281-282 1955.
(TONSILS, surgery,
appar. for ligation of bleeding vessels in tonsillar niches)

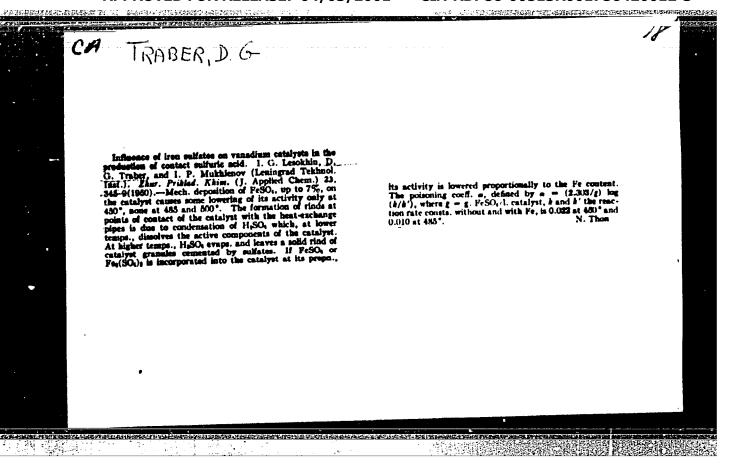
APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

SARKITS, V.B.; TRABER, D.G.; MUKHLENOV, I.P.

Mixing of gas and the character of motion of the solid phase in the suspended layer. Zhur.prikl.khim. 35 no.10:2213-2219 0 (MIRA 15:12)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta. (Fluidization)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"



TO THE PROPERTY OF THE PROPERT

KOPYLEV, B.A., TRABER, D.G.; SYCHEV, M.M.; ORIGOR, V.A.

[Manual of practical problems in general chemical technology]

Rukevodatvo k prakticheskim saniatiiam pe ebshchei khimicheskei
tekhnelogii. Leningrad, Gos. nauchne-tekhn. izd-vo khim. lit-ry,
1953. 315 p.

(Ghemistry, Technical)

(Ghemistry, Technical)

TO A STATE OF THE PROPERTY OF

MUKHLENOV, I.P., kandidat tekhnicheskikh nauk; TRABER, D.G., kandidat tekhnicheskikh nauk; RUMYANTSEVA, Ye.S.

Using a suspended layer of the catalyst in the oxidation of sulfur dioxide. Khim.prom. no.8:457-460 D 55. (MLRA 9:5)

1. Leningradskiy tekhnologicheskiy institut imeni Lensoveta.
(Sulfur dioxide) (Catalysts)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

KOPYLEV, B.A.: TRABER, D.G.; SYCHEV, M.M.; GRIGOR, V.A.; REYKHSFELID, V.O., redaktor; ERLIKH, Te.Ya., tekhnicheskiy redaktor.

الإستامية فالكوالم

[Manual for practical work in general chemical technology] Rukovodstvo k prakticheskim zaniatiiam po obshchei khimicheskoi tekhnologii. Izd.2-oe, ispr. Leningrad, Gos.nauchno-tekhn.izd-vo khim.
lit-ry, 1957. 315 p. (MLRA 10:6)
(Chemistry, Technical—Study and teaching)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

MUKHLEHOV, I.P.; TRABER, D.G.; RUMYANTSEVA, Ye.S.

Reply on the remarks of laroslav Beranek and Ivan Klumpar. Inim.
prom. no.1:43-44 Ja-F '57.

1. Leningradskiy tekhnologichskiy institut imeni Lensoveta.
(Fluidization)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

Harding de Belle de Lines en artes estendos trusces

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KOROPAL TSEV, Nikolay Vasil yevich; KARPOVICH, Yuriy Vladimirovich; TRABER, D.G., kend.tekhn.nauk, red.; GRIVA, Z.I., red.; ERLIKH, Te.Ya., tekhn.red.

[Manufacture of rubber goods by extrusion] Proizvodstvo rezinovykh izdelii metodom litia pod davleniem. Pod red. D.G.Trabera. Leningrad, Gos.nauchno-tekhn.izd-vo khim.lit-ry. 1959. 162 p. (MIRA 12:10) (Rubber industry-Equipment and supplies)

Mechanism of heat transfer between the fluidized bed of granular materials and the wall. Trudy LTI no.54:14-23 159. (MIRA 13:8) (Fluidization) (Heat--Transmission)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

S/137/60/000/007/001/013 A006/A001

Translation from: Referativnyy zhurnal, Metallurgiya, 1960, No. 7, p. 3, # 14235

AUTHORS: Mukhlenov, I. P., Traber, D. G. Sarkits, V. B.

TITLE: The Effect of Hydrodynamic Factors on the Emission of Heat From a

Suspended Layer to the Heat-Exchange Surface

PERIODICAL: Tr. Leningr. tekhnol. in-ta im. Lensoveta, 1959, No. 54, pp. 24-36

TEXT: The author investigated the effect of the size of solid particles, the air velocity, and the initial height of the layer, on the coefficient of heat transfer. The mode of expansion of the suspended layer and changes in the concentration of the solid phase were determined. There are 13 references.

G. S.

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

ANOKHIN, V.N.; TRABME, D.G.; MUKHLENOV, I.P.; RUMYANTSEVA, Ye.S.

Conversion of carbon monoxide in a suspended catalyst bed. Trudy LTI no.54:37-46 '59. (MIRA 13:8) (Carbon monoxide) (Catalysis)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

TRABER, D.G.; RUMYANTSEVA, Ye.S.; MUKHLENOV, I.P.

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Effect of the particle size of a manadium catalyst in a suspended bed on its activity during the oxidation of sulfur dioxide. Trudy LTI no.54:47-52 159. (HIRA 13:8) (Sulfur dioxide) (Oxidation) (Catalysis)

APPROVED FOR RELEASE: 04/03/2001 CIA-RDP86-00513R001756420012-3"

TRABAR, D.G.; MUKHLENOV, I.P.; HUMTANTSEVA, Ye.S.

Kinetics of oxidation of sulfur dioxide in a suspended catalyst bed. Trudy LTI no.54:53-62 '59. (MIRA 13:8) (Sulfur dioxide) (Oxidation) (Catalysis)

5.4700, 5.1190

75666

SOV/80-32-10-15/51

AUTHORS:

Sarkits, V. B., Traber, D. C., Mukhlenov, I. P.

TITLE:

Heat Transfer From Fluidized Catalyst Layer to the

Heat Exchange Surface. Communication 2

PERIODICAL:

Zhurnal prikladnov khimii, 1959, Vol 32, Nr 10,

pp 2218-2225 (USSR)

ABSTRACT:

The study deals with the relation between Nusselt criterion, and the Reynolds and Froude criteria; with the effect of the geometric parameters of the apparatus; and with the effect of the initial height of the layer in heat transfer from a fluidized cat-

alyst layer to the heat exchange surface:

Nu = $\varphi(\text{Re, Fr, } \frac{D}{d}, \frac{H_0}{d})$

Card 1/5

where D is the diameter of the heat exchange apparatus; d is the size of the catalyst particles; Ho is the initial height of the catalyst layer. The experiments were made with BAV-type catalyst of d = 0.127 to 3.5

Heat Transfer From Fluidized Catalyst Layer to the Heat Exchange Surface. Communication 2 75666 **SOV/**80-*3*2-10**-15/**51

mm. The apparatus and the experimental procedure have been previously described by the authors (this journal, 1959, Vol 32, Nr 6, p 1291; Tr. LIT, 1959, p 54). Values of the coefficient of heat transfer were plotted against the velocity of the air flow for various sizes of the catalyst particles, and the curves were expressed by Eq.(1)-(4). Eq.(1) and (3) described the part of the curve from the critical value of air velocity to the optimum value; Eq.(2) and (4) described the curve portion from the optimum value of air velocity to the velocity at which the catalyst particles were carried away from the apparatus. The equations for the laminar flow are:

$$Nu = 0.065 \cdot Re^{0.05} \cdot F_r^{0.27} \cdot \left(\frac{D}{d}\right)^{0.16} \cdot \left(\frac{H_0}{d}\right)^{0.45}, \tag{1}$$

$$Nu = 0.15 \cdot Re^{0.84} \cdot Fr^{0.49} \cdot \left(\frac{D}{d}\right)^{0.16} \cdot \left(\frac{H_0}{d}\right)^{0.45}, \tag{2}$$

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Those for the turbulent flow are:

$$Nu = 0.14 \cdot Re^{0.55} \cdot F_r^{0.17} \cdot \left(\frac{D}{d}\right)^{0.15} \cdot \left(\frac{H_0}{d}\right)^{0.16}, \tag{3}$$

$$Nu = 0.56 \cdot Re^{1.0} \cdot F_r^{0.56} \cdot \left(\frac{D}{d}\right)^{0.13} \cdot \left(\frac{H_0}{d}\right)^{0.16}, \tag{4}$$

where

$$Nu = \frac{a \cdot d}{\lambda_r}$$
; $Re = \frac{w \cdot d}{v}$; $Fr = \frac{g \cdot d}{w^2}$;

Here, α is the coefficient of heat transfer; d is the size of the catalyst particles; w is the linear velocity of the gas in the free cross section of the apparatus; λ_{Γ} is the thermal conductivity of the

gas; ν is the kinematic viscosity of the gas; g is the free fall acceleration; D is the diameter of the apparatus; and H_0 is the initial height of the catalyst layer. The values of the purpose of

alyst layer. The values of the numerical coefficients and exponents in Eq. (1)-(4) were determined from the

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